The myth of Prometheus and the liver

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Introduction

A recent viewing of the painting, *Prometheus Bound* by Peter Paul Rubens (Boston Museum of Fine Arts Exhibition, 1993), brings to mind the role of the liver in the myth of Prometheus. Rubens' powerful scene (completed 1618) depicts an enchained Prometheus writhing in the foreground with an eagle pecking at the exposed liver (Figure 1)[1]. In the legend, the eagle's meal is repeated every day after overnight recovery of the liver. This unusual form of punishment is an uncommon occurrence in the literature of myths. Several questions arise. Why the liver in the first place? Had the ancient Greeks some knowledge of hepatic regeneration? What is the significance of the liver in this torment? For possible explanations let us consider the myth of Prometheus.

The myth

According to Hesiod (eighth century BC) and Aeschylus (fifth century BC), Prometheus was a Titan, an ill-defined order of divine powers coexistent with Zeus[2,3]. It was with Prometheus' advice that Zeus gained absolute power in the Olympian world. The two fell out over the issue of mankind's welfare. Prometheus aided man by initiating him in the arts and science of civilization. Zeus wanted to destroy man for gross impiety and create another race instead. The feud came to a head at a feast where gods and humans disputed on their respective rights. Prometheus tricked his overlord in eating the less desirable portion of the meal and giving the choicest part to his favourites. In anger Zeus revoked man's privilege of using fire. Prometheus promptly stole the fire back for man. For this Zeus banished him to Mount Caucasus and to the punishment portrayed in Rubens' painting. Despite his predicament, he remained defiant withholding a secret that Zeus had dearly wanted. This was the identity of Zeus' future mate, the union of which would produce a child who would commit patricide. After the thirteenth generation another Greek hero, Herakles, appeared to save Prometheus by slaying the eagle. An eventual conciliation of the foes apparently took place. In time Prometheus became an archetypal culture-hero in the West.

The legend provided a seminal theme for artists and authors of succeeding centuries. Not only for the Greeks, but for more recent authors including Shelley,

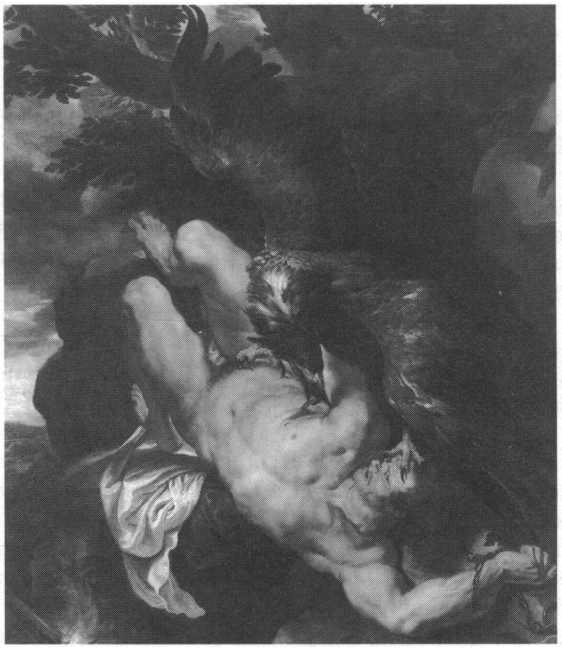

Figure 1. Prometheus Bound, *by Peter Paul Rubens, completed 1618. (Reproduced with permission by Philadelphia Museum of Art)*

Byron and Longfellow, the struggle between Prometheus and Zeus represented the opposition between freedom versus oppression, individual versus state, man against God, rationality versus irrationality, etc., depending on the ideology of the age.

Given the logic of the Promethean narrative, the penalty must be restricted in that it could not kill or maim the hero. Else there would have been no accommodation with Zeus at the end. To maximize the inflicted pain, a psychic and temporal dimension must be included. It is to be carried out repetitively over time without violating the physical integrity of the victim. This would immediately rule out certain target organs of injury such as the brain and the heart. Recurrent trauma to these organs would lead to permanent damage if not death. For similar reason injury to visceral organs other than the liver would also not be possible. Other myths of the Caucasus region tell of a giant who is also fettered to a mountain as punishment for stealing the water of life[2] (p 314). In these versions a vulture pecks at his bowel. Prometheus suffers a similar fate but his site of injury had to be the liver for symbolic and temporal reasons.

The metaphoric significance of the liver is hinted by this passage from Hesoid:

He bound devious Prometheus with inescapable harsh bonds, fastened through the middle of a column, and he inflicted

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on him a long-winged eagle, which ate his immortal liver, but it grew as much in all at night as the long-winged bird would eat all day[4].

Immortal liver

The liver is noted as immortal, not only because of its prodigious recuperative powers, but because for the ancient Greeks it was the seat of the soul and intelligence[2] (p 314). The indestructability of the soul dovetails with the ever regenerative capacity of the liver. The equivalence of the liver and the soul enhances the suffering of Prometheus which is primarily psychic. The gnawing of the liver produces minor physical pain by comparison. The tension between the two kinds of pain is wonderfully portrayed in Rubens' painting where the writhing of Prometheus suggests a mental torment disproportionate to the delicate act of the eagle pecking at a rather inconspicuous liver. The liver also had to regain itself on a symbolic level to fulfil the temporal requirement of cruelty, that is, the repetitiveness.

The myth of Prometheus indicates that the ancient Greeks knew in some measure the liver's potential for repair. The assertion that the organ grew at night as much as the eagle ate all day hints at an understanding of the quantitative aspect and the rate of hepatic regeneration. In Aeschylus the eagle came every other day, allowing a full day for the recovery of the liver[2] (p 315). In either case, overnight or alternate day repair, the ancient Greeks could have gained their knowledge of hepatic growth through the practice of liver divination, and by observation of the healing of superficial wounds and draining abscesses of the human liver.

A second hypothesis has been offered to account for the significance of the liver in the Prometheus legend[4]. This states the punishment is a kind of castration as the liver could be linked with passion and lust. Several objections run counter to this conjecture. First, the erotic association of the liver does not appear in the literature until the time of Aeschylus[2] (p 313). Secondly, castration does not fit the crime of Prometheus whose misdeed is not particularly oedipal or lustful. The emasculation theory, however, is more appropriate for the two other instances in Greek literature in which eating of the liver is mentioned. In the first, Hecuba wishes that she could eat the liver of Achilles, in retaliation for his treatment of her son, Hector (*Iliad* 24, 212 f). In the second, the liver of Tityus is pecked at by two vultures. This story, popular during the Renaissance period, tells of Tityus punished in this manner for assaulting Leto, the mother of Apollo and Artemis[1]. In both cases emasculation would be a fitting retribution.

Conclusion

In summary, the immortal liver referred to the soul of Prometheus. It is the natural target for the cruelty of Zeus. The reparative capacity of the organ allowed not only the temporal aspect of the punishment, the recurrent eating by the eagle, but for the psychic trauma inflicted on Prometheus. One may argue that the ancient Greeks knew nothing of hepatic regeneration, that the repair of the organ was dictated by symbolic and literary reasons rather than based on factual knowledge. We believe otherwise. The close match between the amount of tissue removed by the eagle, the amount and appropriate rate of recovery suggests at the very least an inkling of the phenomenon of hepatic regrowth.

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Letter to the Editor

The Plague of Athens

This is a contribution to the elucidation of the 'elusive chimera' reported by Professors McSherry and Kilpatrick (November 1992 *JRSM*, p 713) and mentioned in Dr Theodorides's letter to the Editor (April 1993 *JRSM*, p 244) in connection with the plague of Athens.

In his book *The History of the Peloponnesian War*[1] Thucydides describes almost perfectly the disease which attacked the population of Athens in the form of an epidemic in the second year of the Peloponnesian war (431-404 BC)[2]. From his thorough study of the clinical and epidemiological data he concluded that the onset of the disease was sudden, the rash consisted of small pustules and ulcers beginning on the head and spreading to the rest of the body. The patients were distressed and suffering from thirst and burning sensation of the eyes, throat and chest and could not even bear contact with bed sheets or the thinnest of clothing. The bad odour given off from the patients was due to the decay of the content of the pustules. The mortality was high but when the disease struck a patient a second time it was mild and not fatal. Therefore, it is clear that Thucydides was the first to observe immunity after infection. The disease was transmitted from person to person by droplets and not by insect bites. The speedy spread of the epidemic made the population suspect that the Peloponnesians had poisoned the wells. The only signs not reported by Thucydides in his astute description were scars. However, it is self-evident that scars are always left after the healing of any ulcer.

In brief, these points support the contention that the plague of Athens was 'smallpox' and not Anthrax, Exanthematic Typhus or any other communicable disease.

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